

REMARKS

Claims 1 – 73 were pending in the present application. Claims 1 – 21, 24 – 28, 32 – 47, 49 – 56, and 59 – 73 had been rejected. Claims 22, 23, 29 – 31, 48, 57 and 58 had been objected to by the Examiner. By virtue of this response, claims 1, 22, 23, 29, 32, 47, 48 and 59 have been amended, and new claims 74 – 94 have been added. Accordingly, claims 1 – 94 are currently under consideration. Amendment of certain claims is not to be construed as a dedication to the public of any of the subject matter of the claims as previously presented. No new matter has been added.

Examiner Interview

Applicants would like to thank the Examiner for speaking with Applicants' attorney on March 1, 2005. During the telephone conversation the Examiner indicated that the Examiner had considered the proposed amendments and the proposed new claims that were sent to the Examiner on February 24, 2005 via email. Applicant also gratefully acknowledge the Examiner's comments that the proposed amendments and new claims were patentable over the references cited in the Sept. 9, 2004 Office Action, and these claims are allowable pending final review upon submission of this response.

In response, Applicants amend claims 1, 32, 47, and 59 according to the proposed amendments. In addition, Applicants introduce the proposed new claims as new claims 74 – 80 for the Examiner's consideration.

Rejection under 35 U.S.C. §102(b)

Claims 1 – 4, 8 – 13, 15, 21, 25, 28, 32 – 33, 40, 59, 65, 66 – 88 and 72 are rejected under 35 U.S.C. 102(b), as being anticipated by Zeigler et al. (5,759,961).

“To anticipate a claim, the reference must teach every element of the claim.” (MPEP 2131 Anticipation – Application of 35 U.S.C. 102 (a), (b), and (e) [R-1]) Zeigler discloses an apparatus for breaking a stream of melted superconducting material with a high velocity heated gas into ligaments which solidify into the fibers. (Abstract, Zeigler et al.) Zeigler does not teach or

suggest a throated structure that “defines at least one channel in fluid communication with the nozzle for receiving a flow of fluid such that the trajectory of the droplet entering the entrance port is alterable by the flow of fluid to a **predetermined path without breaking apart the droplet** as the droplet passes through the exit port.”

If fact, Zeigler teaches away from maintaining the integrity of the droplet as the droplet passes through the apparatus. The nozzle disclosed in Zeigler “is designed to bring the high velocity shear layer of air in close proximity to the droplets so that fine fibers are stripped from the melted superconducting material.” (column 6 line 34 – 37, Zeigler et al.) Thus, a droplet entering Zeigler’s nozzle is broken into many parts and exits the nozzle as a plurality of particles. In addition, Zeigler teaches away from directing the droplet into a predetermined path. Each of the broken particles may exit the nozzle on one of a plurality of paths, as shown in FIG. 1 in Zeigler.

Therefore, Zeigler does not anticipate claims 1 – 4, 8 – 13, 15, 21, 25, 28, 32 – 33, 40, 59, 65, 66 – 68 and 72 as amended. The applicant respectfully request that the rejection under 35 U.S.C. §102(b) be withdrawn.

Rejection under 35 U.S.C. §103(a)

Zeigler in view of Williams

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Williams et al. (6,596,239).

To establish a prima facie case of obviousness the cited references when combined must teach or suggest all the claim limitations. (MPEP 2143) Zeigler does not teach or suggest all the claim limitations in claim 5 as discussed above, and Williams does not cure such defects. Furthermore, neither Zeigler nor Williams teaches or suggests the use of a fluid comprises micro-droplet mist stream to alter the trajectory of a droplet entering the nozzle of the apparatus.

Thus, applicants believe claim 5 is patentable over Zeigler in view of Williams. Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler in view of Nagano

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Nagano et al. (4,740,571).

Zeigler does not teach or suggest all the claim limitations in claim 19, and Nagano does not cure such defects. In addition, neither Zeigler nor Nagano teaches or suggests a reason to adapt a diameter range of 1-3 mm on the outlet part of the nozzle disclosed in Zeigler.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler in view of Matiaccio

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Matiaccio et al., (5,716,540).

Zeigler does not teach or suggest all the claim limitations in claim 20, and Matiaccio does not cure such defects. In addition, neither Zeigler nor Matiaccio teaches or suggests a reason to adapt a diameter range of 0.025-1 mm on the inlet part of the nozzle disclosed in Zeigler.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler in view of Skeath

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Skeath et al., (6,513,736).

Zeigler does not teach or suggest all the claim limitations in claim 24, and Skeath does not cure such defects. In addition, neither Zeigler nor Skeath teaches or suggests a motivation to combine a flow rate of about 0.5-5 liter per minute in the apparatus disclosed in Zeigler. In fact Zeigler teaches away from using a flow rate of about 0.5-5 liter per minute. First of all, Zeigler

teaches the use of a “high velocity fiberizing gas stream. (column 4 line 19, Zeigler) In addition, Zeigler specifically teaches the used of an air flow of 100 SCFM (i.e., 2831.7 liters/min) in the fiberization process (column 7 lines 40 – 45), which is magnitudes higher than the 0.5-5 liter per minute limitation.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler in view of Kennedy

Claims 26, 27, 63 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Kennedy (6,047,725).

Zeigler does not teach or suggest all the claim limitations in claims 26, 27, 63 and 64, and Kennedy does not cure such defects. In addition, Zeigler implements a “high-temperature ceramic collar in the furnace, which is used to stabilize the melt stream and prevent it from wavering”. This configuration teaches away from a droplet that enters the nozzle at an angle from the longitudinal axis.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler in view of Jolliffe

Claims 6 – 7, 14, 16 – 18, 35 – 36, 41 – 45, 61 – 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Jolliffe (6,586,731).

Zeigler does not teach or suggest all the claim limitations in claims 6 – 7, 14, 16 – 18, 35 – 36, 41 – 45, 61 – 62, and Jolliffe does not cure such defects. In addition, neither Zeigler nor Jolliffe teaches or suggests a motivation to combine the two references. Furthermore, a positive air supply is utilized to generate the air flow in Zeigler (column 4 lines 43 – 45, Zeigler), which teaches away from utilizing a vacuum to draw fluid through the channel.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler in view of Jolliffe and further in view of Pui

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Jolliffe (6,586,731) as applied to claim 45 above and further in view of Pui et al.,

Zeigler does not teach or suggest all the claim limitations in claims 46. Jolliffe and Pui in combination do not cure such defects. In addition, neither Zeigler nor Jolliffe nor Pui teaches or suggests a motivation to combine the three references.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler et al. in view of McDonnell

Claims 34 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of McDonnell et al. (3,864,692).

Zeigler does not teach or suggest all the claim limitations in claims 34 and 60, and McDonnell does not cure such defects. In addition, neither Zeigler nor McDonnell teaches or suggests a motivation to combine the two references. Furthermore Zeigler teaches away from utilizing a planar target medium. As shown in FIG. 1 (Zeigler), Zeigler implements a “collecting cloth 32” as the target medium.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler in view of Schultz

Claims 47, 49 – 53, 55 – 56 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Schultz et al. (6,633,031).

Zeigler does not teach or suggest all the claim limitations in claims 47, 49 – 53, 55 – 56 and 70, and Schultz does not cure such defects. In addition, neither Zeigler nor Schultz teaches or suggests a motivation to combine the two references. Furthermore, Schultz does not teach or suggest a plurality of throated nozzles for altering a trajectory of a droplet with fluid flow.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler in view of Schultz

Claims 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Schultz et al. (6,633,031).

Zeigler does not teach or suggest all the claim limitations in claims 37 and 39, and Schultz does not cure such defects. In addition, neither Zeigler nor Schultz teaches or suggests a motivation to combine the two references. Furthermore, Ziegler implements a collection “filter” for receiving the fibers (Abstract, Zeigler), which teaches away from utilizing a well plate.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler in view of Schultz further in view of Hillinshead

Claims 37 and 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Schultz et al. (6,633,031) as applied to claim 37 and 54 above and further in view of Hillinshead (5,942,387).

Zeigler does not teach or suggest all the claim limitations in claims 37 and 54. Schultz and Hillinshead in combination do not cure such defects. In addition, neither Zeigler nor Schultz nor Hillinshead teaches or suggests a motivation to combine the three references.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler et al. in view of Quate

Claims 69 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Quate et al., (4,697,195).

Zeigler does not teach or suggest all the claim limitations in claims 69 and 73, and Quate does not cure such defects. In addition, neither Zeigler nor Quate teaches or suggests a motivation to combine the two references. Furthermore, in Zeigler, the material is melted in the crucible and “falls” in a “stream” through a bottom hole in the crucible. This configuration teaches away from the use of a focused acoustic energy to eject a droplet.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Zeigler in view of Schultz and further in view of Quate

Claim 71 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zeigler et al. in view of Schultz et al., as applied to claim 47 above and further in view of Quate et al.

Zeigler does not teach or suggest all the claim limitations in claim 71. Schultz in combination with Quate does not cure such defects. In addition, neither Zeigler nor Schultz nor Quate teaches or suggests a motivation to combine the two references. Furthermore, in Zeigler, the material is melted in the crucible and “falls” in a “stream” through a bottom hole in the crucible. This configuration teaches away from the use of a focused acoustic energy to eject a droplet.

Therefore, Applicants respectfully request that the rejection under 36 U.S.C. §103(a) be withdrawn.

Objections by Examiner

Claims 22 – 23, 29 – 31, 48 and 57 – 58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 22 – 23, 29 – 31, 48 and 57 – 58 have been so rewritten to include all of the limitations of the base claim and any intervening claims. Therefore claims 22 – 23, 29 – 31, 48 and 57 – 58 are in condition for allowance.

New Claims

As mentioned above, new claims 74 – 80 were part of the proposed amendments sent to the Examiner on February 24, 2005. Claim 74 is the only new independent claim introduced in the present amendment.

New claims 81 – 85 are dependent upon claim 74. Claim 81 is supported at paragraph [0072] of the specification. Claim 82 is supported at paragraph [0057]. Claim 83 is supported at paragraph [0055]. Claim 84 is supported at paragraph [0054]. Claim 85 is supported at paragraphs [0057] and [0063].

New claims 86 – 94 are dependent upon amended claim 1. Claim 86 is supported at paragraphs [0012], [0057], and [0063]. Claim 87 is supported at paragraphs [0012] and [0063]. Claim 88 is supported at paragraph [0072]. Claim 89 is supported at paragraphs [0012], [0057], and [0063]. Claim 90 is supported at paragraph [0072]. Claim 91 is supported at paragraphs [0012], [0057], and [0063]. Claim 92 is supported at paragraph [0054]. Claim 93 is supported at paragraph [0072]. Claim 94 is supported at paragraphs [0012], [0057], and [0063].

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 514542001000. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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